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November 30, 2001

Ms. Kim Johannessen
Johannessen & Associates
5413 Meridian Ave. N., Suite C
Seattle, Washington 98103-6138

Re: Preliminary Assessment
Brix Maritime Company
9030 N.W. St. Helens Road
Portland Oregon
ESCI No. 2364

Dear Ms. Johannessen:

The Oregon Department of Environmental Quality (DEQ) has completed its review of the "*Sampling Results Report in Support of the Preliminary Assessment of the Brix Maritime Company Facility.*" This report was prepared by Anchor Environmental, Inc. and was received by DEQ on September 28, 2001.

Preliminary Assessment: This report in conjunction with the "*Supplemental Preliminary Assessment Summary Report*" (Anchor Environmental, October 2000) and the "*Work Plan for Underground Storage Tank Investigation*" (Hahn and Associates, May 2001) are considered Preliminary Assessment (PA) and Expanded Preliminary Assessment (XPA) equivalents. Completion of the PA/XPA satisfies the November 18, 1999 Voluntary Cleanup Letter Agreement between DEQ and Foss Maritime. However, DEQ does not agree with the conclusions or the risk evaluation that are presented in this report. It is our opinion that the conclusions contained in the report are based on an incomplete understanding of the nature and extent of contamination, data of limited quality (i.e., screening level groundwater data) and speculative arguments. Therefore, the risk evaluation presented in this report and conclusion that "no further investigation" is needed are not accepted by DEQ. DEQ's detailed comments on the report are presented in Attachment A.

Need for Further Investigation. The "*Supplemental Preliminary Assessment Summary Report*" documents the presence of hazardous substances in site soil and groundwater above risk-based screening levels for human health and ecological receptors. Therefore, DEQ has determined that further investigation is needed to assure protection of present and future public health, safety, welfare or the environment and requests that Brix Maritime perform a remedial investigation (RI) in accordance with the Environmental Cleanup Law, Oregon Revised Statutes (ORS) 465.200 *et seq*. The objective of the RI will be to fully define the nature, and extent of releases of hazardous substances to the upland portion of the site, determine whether source control measures are necessary, and evaluate potential impacts to the Willamette River.

The Brix facility is located within a portion of the Willamette River known as the Portland Harbor. Portland Harbor was designated a National Priorities List (NPL) site (i.e., Superfund) by the U.S. Environmental Protection Agency in December 2000. Regulatory oversight of the Portland Harbor Superfund site is being jointly managed by DEQ and EPA. Under the Memorandum of Understanding (MOU) between DEQ and EPA, DEQ is responsible for the oversight of investigations at upland facilities, such as the Brix facility, and EPA is responsible for oversight of in water (i.e., sediment) activities on a harborwide basis. DEQ is responsible for identifying current and historic sources of sediment contamination and source control measures.

DEQ proposes that your performance of the RI be governed by the Voluntary Agreement (Agreement) developed specially for sites located within the Portland Harbor Superfund site. A draft Agreement and Scope of Work (SOW) are enclosed for your review. It is DEQ's expectation an Agreement can be signed by February 1, 2002. Please notify me no later than December 18, 2001 of Brix's intent to enter into the Agreement. If Brix intends to move forward under this Agreement, DEQ requests that any questions regarding the enclosed Agreement and SOW be resolved no later than 45 calendar days from the date of this letter. Please be advised that DEQ does not intend to negotiate or revise the substantive terms of this standard Agreement or the SOW developed for Portland Harbor sites.

If you indicate that Brix is unwilling to enter into a Voluntary Agreement, DEQ will exercise all remedies available to it under the Environmental Cleanup Law to ensure that necessary investigations are undertaken. Finally, please be advised that DEQ is required by ORS 465.330 to recover remedial action costs incurred by DEQ.

DEQ looks forward to working with you to address the environmental concerns at the Brix facility. You may reach me at (503) 229-5562 to discuss site specific aspects of your project, questions regarding the Agreement or SOW, DEQ oversight costs, or possible DEQ actions as a result of non-compliance.

Sincerely,

Rodney G. Struck, R.G.
Project Manager
Voluntary Cleanup and Portland Harbor Section

Enclosures: Attachment A – DEQ Comments
Draft Voluntary Agreement for Remedial Investigation and Source Control Measures
Scope of Work for Remedial Investigation and Source Control Measures

cc: Eric Blischke, DEQ/NWR w/o enclosure
Lynne Perry, DOJ
Karl Stivers, Anchor w/o enclosure
ECSI File No. 2364
Mike Rosen, DEQ/NWR w/o enclosure
Bruce Brody-Heine, DEQ/NWR w/o enclosure
Guy Tanz, Hahn & Associates w/o enclosure

ATTACHMENT A

The Oregon Department of Environmental Quality (DEQ) review comments on the "*Sampling Results Report in Support of the Preliminary Assessment of the Brix Maritime Company Facility*" are presented below. This report was prepared by Anchor Environmental, Inc. and was received by DEQ on September 28, 2001.

General Comments

A. This document provides an adequate response to DEQ's previous comments regarding current and historical use of hazardous substances on site.

B. During our June 27, 2001 meeting, preliminary data from the recently completed investigation of the underground storage tanks and lube oil release was presented. Based on information presented at this meeting, DEQ identified the following concerns in our July 3, 2001 letter:

- DEQ believes monitoring wells are needed to assess current groundwater pathway to the river and to satisfy DEQ's leaking underground storage tank rules. Wells are needed to define groundwater flow directions, produce groundwater data of acceptable quality and assess potential impacts to the river.
- DEQ requested Brix review the available data set to assess if adequate polycyclic aromatic hydrocarbon (PAH) and volatile organic compound (VOC) data has been collected to be representative of observed petroleum contamination concentrations in soil.
- DEQ requested Brix prepare the items listed below in draft form, to facilitate our discussion potential contaminant migration pathways, receptors, and future sampling activities. These item were not submitted These items include:
  - A geologic cross-section(s) and the conceptual site hydrogeologic model.
  - A figure showing the estimated surface topography of the silt/clay unit.
  - Conceptual site exposure model prepared following DEQ's Risk-Based Correction Action Guidance for underground storage tanks (USTs) (see Figure 2-1, page 16 of this guidance). The site exposure model should include potential ecological receptors.

The concerns listed above were not addressed in this report.

C. Adequate characterization of the nature and extent of the soil and groundwater contamination at the site is required before the risk screening and/or assessment if completed. Based upon the data collected at the Brix site, the nature and extent of the groundwater impacts (laterally and vertical) have not been adequately defined.

The main data gap identified is the lack of understanding of the groundwater system and potential transport of contaminants via groundwater; including the flow direction, seasonal variations, and influences from the adjacent Willamette River. The data gaps include, but are not limited to:

- Groundwater wells are required to adequately characterize the site hydrogeology, define the extent of the contaminant plume; assess the presence of non-aqueous phase liquid (NAPL); and provide data of sufficient quality for risk evaluations.
- Groundwater flow directions have not been determined at the site. Based upon the two source areas locations and the limited GeoProbe® groundwater analytical results groundwater may flow may range from the east (upriver) to away from the river to the south (PAHs detected in B-18).
- Source area groundwater samples have not been collected to fully define the nature and extent of the contaminant plume and to demonstrate whether B-17 is truly a representative of the plume discharge to the river or merely the edge of the dissolved contaminant plume.
- The seasonal and river level fluctuation impacts on the groundwater system and subsequently on the contaminant plume has not been evaluated. Contaminated soil has been detected throughout the soil column to the top of the water table (Silty Clay Layer) in field observation (B-21, B-22, and B-28), as well as analytical data from 12 and 15 feet below ground surface. In addition, some groundwater screening concentrations and historical observations indicate NAPL may be present in the source area.

Data gaps are typically identified by creating a conceptual site hydrogeologic model of the facility that describes site geology, anticipated groundwater flow conditions, anticipated contaminant migration distribution, identification of potential migration pathways and receptors, etc. The conceptual model and assumptions are used to design a field investigation (e.g., installation of monitoring wells) that collects sufficient data to fully define the nature and extent of contamination and validate the conceptual site model and associated assumptions. Based upon the incomplete characterization of the nature and extent of contamination at the Brix facility, DEQ can not concur with numerous statements and conclusions presented in the report at this time. In addition, because the nature and extent of contamination is not complete, the risk evaluation contained in the report is not acceptable at this time.

D. A preliminary screening of the site groundwater data to Ambient Water Quality Criteria (AWQC) and DEQ's screening benchmark values (SBV's) was performed by DEQ to assess the potential for groundwater to adversely impact the Willamette River or its sediments. Groundwater concentrations for several compounds are greater than the screening values (Oregon Table 20, AWQC). Potential receptors for the screening level assessment include general ecological receptors, humans (including fish consumption), and endangered species. Compounds exceeding the screening level values include: benzene, benzo(a)anthracene, benzo(a)pyene, benzo(b)floranthene, benzo(k)floranthene, chrysene and ideno(1,2,3-cd)pyrene. DEQ is requiring further investigation at the facility based on these exceedances, the limited data set, the potential of contaminants discharging to the river, and the incomplete characterization the site.

E. DEQ does not agree with the conclusions or the risk evaluation that are presented in this report. It is our opinion that the conclusions contained in the report are based on an incomplete understanding of the nature and extent of contamination and data of limited quality (e.g., screening level groundwater data). Specifically, we believe that the conclusion that no further characterization or remediation of site groundwater or soils is premature and based on speculative arguments. The risk evaluation presented in this report is not accepted by DEQ. DEQ's detailed comments on the report are presented below.

Specific Comments

1. Section 2.2. Page 5. Item 9. DEQ's response to the Brix Maritime submittal should be included.

2. Section 2.2. Page 5. Item 10. It should be noted that this work plan was not approved by DEQ and was implemented without DEQ oversight.

3. Section 2.2. Page 5. Item 11. It should be noted that this work was performed without DEQ oversight.

4. Section 2.2. Page 4. Item 12. DEQ's follow-up letter, dated July 3, 2001, to the June 27, 2001 meeting should be included in this list.

5. Section 2.3. Page 5. This section of the report is not accepted at this time, based on the existing data and the incomplete assessment of the extent of contamination. In addition, some of the information and conclusions presented in this section are misleading and do not address previous DEQ comments or indicate DEQ has previous disagreed with the conclusions presented in this section.

   DEQ does not agree that potential pathways to the river do not exist. Available data indicate groundwater at the facility is impacted at concentrations that may pose an unacceptable risk to surface water quality in the river. DEQ has previously commented on the need for further evaluation of pathways and the need for additional data to determine if these pathways are impacting the river. DEQ's previous comments on this subject were included in the following letters:
   - Comment letter dated July 3, 2001. This letter requests a conceptual site exposure model;
   - Comment letter dated February 21, 2001, item No. 3;
   - Comment letter dated December 19, 2000, comment Nos. 2, 7, and 8; and
   - Comment letter dated April 20, 2000. This letter requested an evaluation of pathways of exposure.

6. Section 2.4. Page 4. The information and conclusions presented in this section are misleading and do not address previous DEQ comments or indicate DEQ has not agreed with the conclusions presented in this section. DEQ's previous comments on this subject were included in the following letters:

- Comment letter dated July 3, 2001. This letter requests a conceptual site exposure model;
- Comment letter dated February 21, 2001, item No. 3;
- Comment letter dated December 19, 2000, comment No.8; and
- Comment letter dated April 20, 2000. See specific comment Nos. 6, 7, and 8.

7. Section 2.5.2. Page 9. The information presented in this section is incomplete. This section should note that "oil" was reported to be seeping from the walls of the excavation following a partial removal of contaminated soils in 1993. This observation suggests the potential for non-aqueous phase liquid (NAPL) on-site (See DEQ Comment Letter dated December 19, 2000, Specific Comment No. 7).

8. Section 3. Page 10. It should be noted in the introduction to this section that the field investigation was conducted independently by Brix and was not performed under DEQ oversight or following a DEQ approved work plan.

9. Section 4. Page 11. The rationale for only reporting a subset of U.S. EPA Method 8260B analytes should be provided.

10. Section 5. Page 17, Groundwater Sample Results. Groundwater sample results should be screened against Ambient Water Quality Criteria (AWQC) to assess potential ecological risk and impacts to the Willamette River.

11. Section 7.1. The beneficial use evaluations presented in this section are considered by DEQ to be preliminary. These determinations were based on limited information and were not conducted in accordance with applicable DEQ guidance.

12. Section 7.1.2. Page 21. Groundwater discharge to the Willamette River is a beneficial use of groundwater and should be identified as such. It should be noted that groundwater discharge to surface water is discussed in Section 8.

13. Section 7.2. Page 22. The conceptual site model should depict all pathways. Information on waste sources, pathways, and receptors at a site should be used to develop a conceptual understanding of the site to evaluate potential risks to human health and the environment. The conceptual site model should include known and suspected sources of contamination, types of contaminants and affected media, known and potential routes of migration and known or potential human and environmental receptors. This assessment should be consistent with future uses and site activities.

14. Section 7.2.2. Page 23. Site contaminants of potential concern (COPC) must be selected following the procedures described in DEQ's risk assessment guidance documents. It is not apparent that these procedures were followed. In addition, a final list of COPC are not typically identified until the nature and extent of contamination are fully defined.

15. Section 7.3. Page 24. This evaluation must be performed for all contaminants of interest (COI) on-site. Risk screening should be performed in accordance with the procedures presented in DEQ risk assessment guidance documents.

16. Section 7.3. Tables 5, 6, 10. Values for all contaminants of interest should be presented as listed in the DEQ guidance document and appropriately footnoted. Numerous errors exist in these tables. The lowest RBC concentration is frequently incorrect. For example, in Table 10 RBCs exist for most of the compounds listed for groundwater ingestion and inhalation and should be used for screening level risk evaluations. As an example, the RBC for 1,2,4-Trimethylbenzene is 260 µg/L (for occupational vapor intrusion into buildings). The listed RBC for this compound is exceeded on-site and is footnoted "=S." The footnote indicates that free product may be present. Please see *Risk-Based Decision-Making for the Remediation of Petroleum-Contaminated Sites*, Oregon DEQ, 1999.

17. Section 7.3. Page 25. The conclusions of the risk evaluation are based on an incomplete data set. For soil, it appears risks were evaluated based on only six (6) soil sample locations. In addition, the depths for each sample were not demonstrated to be representative of site conditions or pathways. For example, B19 only had one sample take at 21.5 ft and was only analyzed for a limited number of constituents. For groundwater, it appears that potential risks were evaluated using only seven (7) sample points (B-14 through B-20); groundwater data in or directly downgradient of the source areas has not been collected. In addition, limited PAH data was collected.

18. Section 7.3. Page 25. Last paragraph. The basis for the conclusion in this paragraph is not supported. Additional investigations are needed to define the nature and extent of contamination.

19. Section 8.1.4. Page 28. It should be noted that this evaluation is based on Geoprobe® groundwater grab data. This data is considered appropriate for screening. However, the nature and extent of groundwater impacts have not been adequately defined, therefore any conclusions based on the existing data set must be considered preliminary. Groundwater monitoring wells are needed to assess the current groundwater pathway to the river and to satisfy DEQ's leaking underground storage tank rules. Wells are needed to define the groundwater flow direction, produce groundwater data of acceptable quality for risk assessment purposes, and to assess potential impacts to the river. While the data from B-17 may have detected the highest concentrations observed during the site investigation, it has not been shown these concentrations are representative of the site.

20. Section 8.1.4/Section 8.1.5. Page 28. The statements that groundwater concentrations would be attenuated and diluted prior to discharging to the river is not acceptable. Groundwater concentrations exceed water quality criteria and therefore indicate that the site may pose an unacceptable risk to the river. Additional work is needed to further characterize the site and evaluate the potential impacts to the river.

21. Section 8.2. The arguments presented in this section are speculative and not appropriate. Risks associated with surface water, sediments, and fish consumption will be addressed as part of the U.S. EPA Portland Harbor Superfund site. As explained in our February 21, 2001 letter, DEQ is responsible for the oversight of investigations at upland facilities, such as Brix, and EPA is responsible for oversight of in water (i.e., sediment) activities on a harborwide basis. Groundwater concentrations exceed water quality criteria and therefore indicate that the site may pose an unacceptable risk. Additional work is needed to further evaluate this risk and whether source controls might be needed.

22. Section 8.3. The arguments presented in this section are speculative and not supported with adequate site data (See Comment 19).

23. Section 8.3. Page 32. Last paragraph. The range of groundwater flow velocities (1 to 16 years) estimated at the site indicate contaminants may have reached the river from the 1993 release.

24. Section 8.4. Page 33. The arguments presented in this section are speculative and not appropriate. The findings presented in this section are not supported with adequate site characterization data and are inconsistent with DEQ procedures for evaluating groundwater discharges to surface water. Dilution should not be used in the determination of exposure point concentrations for ecological risk assessment.

25. Section 8.5. Page 34. The arguments presented in this section are speculative and not appropriate (See comments 19 through 24).

26. Section 9. DEQ does not agree with the conclusions presented in this section. These conclusions are based on an incomplete understanding of the nature and extent of contamination and data of limited quality. The statement that "the site is not a source of constituents to the river" is inconsistent with statements made in Section 8 that indicate contaminants are likely migrating to the river. In DEQ's September 24, 2001 and July 3, 2001 letters the need for additional investigations were identified. See General Comments B and C.